those suspected of rheumatism when there is no evidence that they are diseased. Further, we do not know all the avenues of infection. The wholesale removal of tonsils must mean occasional disaster to a healthy child, and the ground for such a step as this must be absolutely sure. The medical profession has to accept the factor of some infective focus in acute rheumatism, and in course of time we must learn how far steps should be taken along these lines for the prevention of the infection. Our experience as yet is not sufficient.

SUMMARY OF ARGUMENT.

I have now finished my comments upon the weak points in the present management of rheumatic heart disease in the young, and the steps that appeal to me as likely to be of service. Briefly summarizing these now, they are:

1. Improvement in medical instruction.
2. Education of the public, particularly parents and school teachers, by propaganda and lectures.
3. Further investigations into the incidence of chorea in London.
4. Auxiliary country hospitals with a special department for cardiac children.
5. A schedule of suitable occupations for cardiac children.
6. A central bureau for purposes of organization. In the far future an institution for research into and the study of rheumatism.
7. Discrete treatment of local foci.

Expectations from Prevention.

It may now be fairly asked what we may hope to gain by measures which mean expenditure of money and a great deal of skilled organization. It may be objected that we are not going to cure rheumatic heart disease by these methods, and that our active therapy is very imperfect. Will these children then benefit much by these measures, and will the State gain any advantage? It seems to me that much is to be hoped. In the first place, these measures introduce a new atmosphere into the study of heart disease. Heretofore we have treated the acute illness and we have patched up the chronic heart conditions, but often enough, I think, without attempting to distinguish between the active infective process and the passive results from scars. In other words, we have treated these patients as cases of heart disease rather than as cases in which a cardiac lesion is the prominent symptom of an infective process. Now with prevention we are irresistibly led to think ahead, and to treat such cases with a view to the future, asking ourselves, How did this occur? Where was the weak point? Have we got the active element of the disease under our control? and Have we got the best possible result in the circumstances? This line of thought invariably makes for progress and for thoroughness. Those who have watched cases of rheumatic heart disease in private practice with every advantage in treatment and care must have been astonished to see how wonderfully they may recover. It is to anyone who has not had this experience a revelation. I believe that we should, with prolonged and skilfully managed convalescence, see a great improvement in our results with the most important group of all our cases—the first attacks of rheumatic carditis. With proper organization, I believe, we should get hold of the cases with recurrent attacks more easily and give them also a much better chance of recovery. I feel convinced we should learn to prevent much chorea, and believe that in a few years we should learn much more about the life history of the rheumatic child, and thus prevent many breakdowns during school life. All this would be the more valuable because the incidence of cardiac rheumatism is greater in the first fourteen years of life than at any other period. Care as to occupation in after-life must produce good results. Lastly, I believe that along these lines we shall throw light upon the malignant or progressive forms of endocarditis, because we are more likely to discover the early departures from health which precede the established disease, as year by year we get the cardiac cases more carefully organized and under more complete supervision.

I hope that very careful consideration will be given to this question of prevention. The ravages of rheumatic heart disease deserve our close attention in London, and wherever there seems to be any ray of light that direction is worth exploring. I am no advocate of wild schemes. When I see an old country garden with some dead trees and damaged shrubs I do not advocate its total upheaval and conversion into a modern one. We can work by degrees and test each step. Do not suppose that I advocate, for example, building a number of auxiliary heart hospitals; on the contrary, these cases could be well managed in an auxiliary hospital of a general type, if the special needs of these children were considered.

It is high time that the whole subject should be considered seriously by our profession, and if after careful consideration prevention does not appeal as a practical undertaking, at least we shall know the reasons for such a decision, and whether we agree or not shall not feel, as I do now, that in London we are content with the policy of drift.

THE ECONOMIC ASPECT OF HEART DISEASE.

BY

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THE vast economic loss to the community caused by disease must be obvious to anyone who has ever reflected on the subject; more particularly patent did this become during the great war, when perhaps for the first time the labours of the Royal Army Medical Corps with regard to hygiene and preventive medicine began to be fully appreciated. The conception of disease held by the laity is largely based upon their experience of acute diseases, such as scarlet fever, measles, and diphtheria. In such cases the patient as a rule either dies or gets well again in a reasonable length of time. This, too, was the idea of the ancients, in whose writings far more space was devoted to the consideration of fever and other cognate acute diseases than to chronic disease, for, like the artisan of Plato, "they had not leisure to be ill." Yet, of course, the medical profession is well aware that in the modern world the sum total of human distress and inefficiency caused by chronic disease far exceeds that produced by acute disease—at all events in Western Europe and America—so greatly have acute diseases been reduced by the energy and science of modern hygiene. But from chronic disease the economic loss is enormous, and in the case of cardiac disease, with which this paper is concerned, it is particularly great. Thus in the United States it is said to be the cause of the greatest number of deaths and disabilities.

No doubt the abolition of all forms of rheumatism and of syphilis would reduce cardio-vascular disease by nearly two-thirds, but apart from the immediate onset of any such medical millennium it seems well to consider by what mechanism we can ameliorate the condition of cardiac patients and render their lives more economically effective.

The ancients were under the impression that the heart was invulnerable so that no disease could befall it, and in some ways it seems unfortunate that the word "disease" has to be applied to the heart, for it so often creates an erroneous impression in the mind of the laity in general and employers in particular, associating it as they do with the idea of sudden death. Cardiac disability or a "laming" of the heart would almost seem to be a more appropriate expression, for in truth when the heart has been damaged by rheumatic fever so that there is a valvular lesion, it is in many cases in a condition analogous to that of a limb after anterior poliomyelitis: it is definitely and permanently handicapped, but the condition is not necessarily progressive. But just as a man who has suffered from infantile paralysis may not have his activity very seriously impaired for his life's work, so too a patient with a compensated valvular lesion may frequently not be greatly inconvenienced. One must never forget that cardiac disability varies from complete invalidism to a state of fairly high efficiency, the majority of cases being correctly classified as "moderately handicapped." Hitherto attention has been rather too much directed to the serious cases of heart disease and away from the merely handi-

capped, which from the public health and economic point of view are just the cases which most require assistance.

At the present time the difficulty which besets physicians in charge of cardiac cases among the poorer members of the community is that the patients must so often be sent out of hospital too soon, owing to the large number of prospective patients on the waiting list. Others, again, may be left in hospital too long because there is no alternative but returning to a most inadequate home with all the temptation which a man must have to take up his old work long before he is fit for it.

What is required is something in the nature of a convalescent camp, which should, so to speak, be an integral part of the hospital. If there were such a camp in existence, quite a number of cardiac patients who are now perforce retained in hospital for six to seven weeks might readily be transferred to the camp after the lapse of two or three weeks, where they would be under supervision and able to take quiet exercise in a way which is hardly possible in an ordinary urban hospital. But in addition to such a convalescent camp, or rather in conjunction with it, what is specially wanted is some machinery for enabling patients after a sufficient interval to get back to their former work, if suitable in some cases, while in others there is required some means of training for such trades as are known to be specially adapted for patients with a cardiac lesion.

In this connexion it may be of interest to describe what is being done in America with regard to what they call "occupational therapy," or sometimes "follow-up therapy," in connexion with heart disease.

In America definite measures are taken to combat heart disease, or rather the effects of it, somewhat similar to what is done with regard to tuberculosis. The difference, of course, is that in the case of tuberculosis we know the cause and can attack it at the source; in the case of heart disease, rheumatism, which is perhaps the causal factor of 50 per cent. of cardiac cases, does not easily lend itself to such prophylactic treatment as shall abolish it. But in the case of heart disease due to rheumatism, unlike the lungs affected by tubercle, there is no such likelihood of progress to an untimely death, only a definite curtailment of life's activities; a most important part of treatment is to discover what kind of occupation may suit the handicapped condition.

Now as a result of the Hospital Social Service Conference in New York, the Sharon Convalescent Home for Cardiacs was established in 1913, and the organization known as the Trade School for Cardiacs was formed. So important did the problem appear that the organizations interested in its different phases were co-ordinated, and as an outcome of the interest thus aroused there was instituted in New York in 1915 an association for the Prevention and Relief of Heart Disease, its purpose being to co-ordinate and promote the efficiency of all organizations doing cardiac work in New York. In spite of some setback during the two years when America was in the war, a very great deal has been done by the instrumentality of this association towards making a cardiac patient more generally efficient. It has, of course, long been known to physicians that a very large number of cardiac patients are capable of doing quite a fair amount of work with, it may be, an occasional breakdown, but there is in this country no adequate organization for making the best of these somewhat handicapped cardiac patients.

The essential points arrived at by the American society are (1) prolonged convalescent care, (2) opportunity for securing for the patient work of a less exacting nature. In Greater New York there are as many as 300 beds for convalescent heart patients; of these one-fifth are for adults and four-fifths for girls. Experience seems to indicate that one heart convalescent bed is required for every 10,000 of a large city population. These convalescent beds for heart patients cost about £45,000.

It is claimed by this association that the total disability period is distinctly shortened (1) when hospital treatment is completed by a convalescent training which will lead directly, under medical supervision and regulation, into work instead of dependency; (2) by the adjustment of the patient to a substantially gainful occupation suitable to his mental and physical capacities. "If the proper treatment of a cardiac patient is not drugs but a change of occupation, should not this be supplied, just as an operation should be given free to a patient with a hernia, or quinine administered to a case of malaria?" The cost of finding a cardiac case lighter work is discovered to be far less than the cost to the same hospital of this patient, who will return repeatedly for longer and longer periods if he is allowed to undertake his former occupation without adequate supervision. An employment bureau for cardiacs should be supported by the hospitals themselves, and with this bureau should be established also an "occupational bureau."

Dr. F. Brush, Medical Director of the Burke Foundation for Convalescents, very wisely says: "Cardiac cases need particularly correction of neuroses and faulty mental attitudes, upbuilding of general physical and heart muscle strength through short period activities alternating with rest, and the inculcation of ways of life that will carry on into the main pursuits—which are happiness and service." Such requirements are, in his opinion, best met by the "play cure," which can be obtained anywhere and requires when fully developed but a modest equipment. It should be carried on mainly out of doors and it excels in giving outlet and expression to the larger part of the personality. Dr. Brush, from his wide experience at the Burke Foundation, where 3,500 cardiac cases have been treated, finds that "occupational therapy" can be remedially applied in convalescence for only one or two hours a day, whereas to "recreation therapy" three to six hours may be reasonably devoted. Hence there is a department for recreation and occupation, and they are made to alternate in a suitable way. Further observation does not show that cardiacs will overdo themselves later in consequence of their recreational satisfactions while in the convalescent home. Even granted that the heart itself were made no better by this play training, life was made better and heartier—a clear gain. As Dr. Brush forcibly expresses it: "It is important for our two millions of cardiacs to know how to play."

The exercises applied in the convalescent-reconstructive stages of heart disease have three main purposes: (1) To improve the general condition (nutritional, muscular, and organic); (2) to increase the cardiac reserve power; (3) to lessen the introspective and neurotic tendencies, for the psycho-neurotic element is very important in many forms of heart disease. It is a good thing for the exercises to stimulate and merge into everyday physical and social activities. Though formal gymnastics are found helpful in inspiring courage and getting hold of the mild slacker and neurasthenic, after six years' observation of 3,000 heart convalescents, no régime has given such all-round satisfaction, safety, and success as the old farm régime, where a total of nearly 500 cardiacs, boys and young men, were given essential freedom of play and work over the place—of course under reasonable regulations of rest, etc.

Dancing has been found a most useful exercise; it certainly ranks very high in mental therapeutics. Convalescent cardiac cases with but a moderate degree of cardiac reserve may begin cautiously to dance and then go on to considerable indulgence with safety and benefit. Patients are often under the impression that dancing is necessarily a strenuous and exhausting exercise, whereas short period dancing, shuffling with little weight lifting, is one of the mildest exertions. Dancing gives an additional and readily available test of the cardiac reserve and of progress. Among all the thousands of dancers there have only been twenty collapses or partial faints, and these were found to be mainly hysterical or neurotic.

Much of the success of this American method of dealing with those handicapped by heart disease depends on obtaining the services of an intelligent social service worker whose duties include the visiting of the patient in his home, the education of the patient and his family, the improvement of home conditions, and often the securing of some lighter or more suitable form of work.

Were it possible to have in this country some of the facilities for dealing with cardiac cases which obtain in

the United States and have been so wisely utilized there, it can hardly be doubted that a considerable economic saving would accrue to the community, while to the individual patient there would be given that truest source of happiness—the increased power of exercising an activity.

For much of the information in this paper I am indebted to the kindness of the Secretary (Miss M. L. Woughter) of the Society for the Relief and Prevention of Heart Disease, 370, Seventh Avenue, New York.

ACUTE PAN-SINUSITIS: A SEVERE CASE.

BY

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MANY cases of acute suppuration in the accessory sinuses of the nose never apply for treatment, the majority being looked upon as merely part of a severe "cold in the head." Of those that do come under observation some are never diagnosed, and in others the original infection is overlooked or forgotten by the greater claim of the secondary infection to which it may have given origin.

This helps to explain why many illnesses are dated, both by the public and the profession, from "a cold" or "chill." This head-cold, in such cases, may have been the primary infection, causing a sinusitis from which originated (*a*) symptoms in the neighbouring region (pharynx, eyes, ears, head, face), or (*b*) in more distant organs (lower respiratory and digestive tract), or (*c*) interference with general health (simulating typhoid, malaria, neurasthenia, etc.). Doubtless many a bronchitis or pneumonia, beginning with a "cold in the head," has owed its infection to pus in an accessory sinus.

It is quite uncommon for an acute sinusitis to run a course of any length without some secondary infection becoming the predominant disease. I have published two of my own cases of sphenoidal sinusitis in which death resulted with cerebral and ophthalmic complications, together with forty other cases recorded in literature.[1] All these forty-two cases were verified by a *post-mortem* examination.

But it is so uncommon for a sinusitis to remain acute for any length of time, without secondary infections, that I think it might be interesting to record the most severe and persistent case I have ever met with. The temperature chart alone indicates the length and severity of the resulting illness. The only complication was the rare one of an acute thyroiditis, and this did not develop until the third week of the sinusitis. (See chart.)

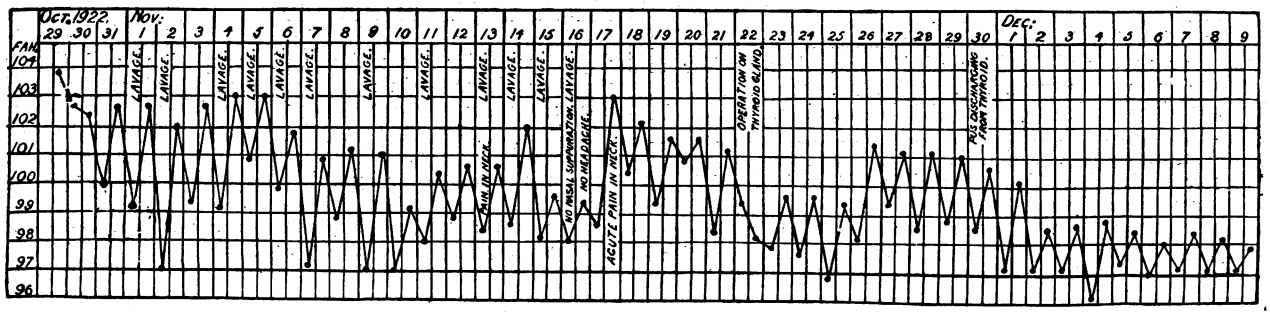
On October 31st, 1922, I was called by Dr. Giordani to see a foreign diplomatist. For four days previously his temperature had been raised, reaching even 104°. He looked very ill, complained bitterly of his headache, chiefly frontal, and was sweating freely. There was copious pus in both nostrils; all the sinuses were involved. The maxillary sinuses were lavaged and abundant pus expelled.

This lavage had to be repeated twelve times in sixteen days before the maxillary sinuses cleared. During this time the inflammation in the cavities was so acute that on certain occasions the abundant and clotted pus was uniformly pinkish. Discharge from the sphenoidal sinuses was encouraged by local applications of cocaine and adrenaline. Inhalations of menthol steam were frequently given. The expelled pus, examined bacteriologically by Dr. E. Burnet, produced a growth of staphylococci, streptococci, and pneumococci.

The flow of pus from the region of the frontal sinuses soon diminished and frontal headache ceased; the suppuration from the maxillary sinuses persisted, in spite of lavage; but the most persistent discharge and headache came from the sphenoidal sinuses. The sphenoidal sinusitis not only produced a bilateral parietal headache, but a still more intense ache in the typical situation of the occipital region and nape of the neck. Here the headache was so acute that we were very glad to have the opinion of Dr. Farquhar Buzzard. The sinusitis had persisted for nearly three weeks when he saw the case on November 13th. He decided that there was no invasion of the central nervous system.

During this long-drawn-out suppuration Dr. Giordani and I had been keeping a careful watch for secondary infections, but the eyes, ears, throat, lungs, heart, kidneys, and digestive tract remained unaffected. About the twentieth day the patient complained of pain on the right side of his neck, and we found the thyroid gland swollen and tender. This proved to be the beginning of the only secondary infection which the patient developed.

On November 19th—the twenty-fifth day of illness—both maxillary sinuses were lavaged and found quite clear; there was only a trace of muco-pus from the sphenoids; the headache had disappeared and the temperature was round about 99°. But the pain and swelling in the neck persisted; the temperature rose again in a few days to 103°, and, although



there was no definite suppuration, Mr. Legg, who had been called in consultation, thought it well to cut down and examine the thyroid gland. This was done on November 22nd—nine days after the first symptoms referable to the neck and in the fourth week of the sinusitis. The right lobe of the thyroid gland having been exposed through a transverse incision, punctures were made in various directions and the gland explored with forceps and dissector—but no pus was found. During the operation it was remarked that the connective tissues of the region were oedematous and the veins very distended. Two drainage tubes were left in place; local symptoms (pain and swelling) improved next day, and a week later pus began to escape from one tube and continued for a week, with a normal temperature (see chart). Cultures gave the same organisms as had been found in the nasal suppuration. The left lobe of the thyroid enlarged for a week—just as the right lobe was subsiding—but it caused no pain and went down in a few days.

On December 2nd, five weeks after I had first seen him, the patient was convalescent, but it was not until the end of January that he was able to come to my study for examination. Except for a little fistula in his neck no local symptoms of his severe illness remained. There was no trace of pus in his nose or throat, and transillumination of the formerly opaque maxillary sinuses showed that they were quite clear.

Although organically sound he was looking very shaky, and no wonder, for he had been a very sick man for three whole months. This prolonged illness, entailing fever, severe pain, and insomnia, had all resulted from an acute pan-sinusitis. Complications had, I believe, been averted because the case was diagnosed early and treated seriously. The local treatment has been described. The regular lavage